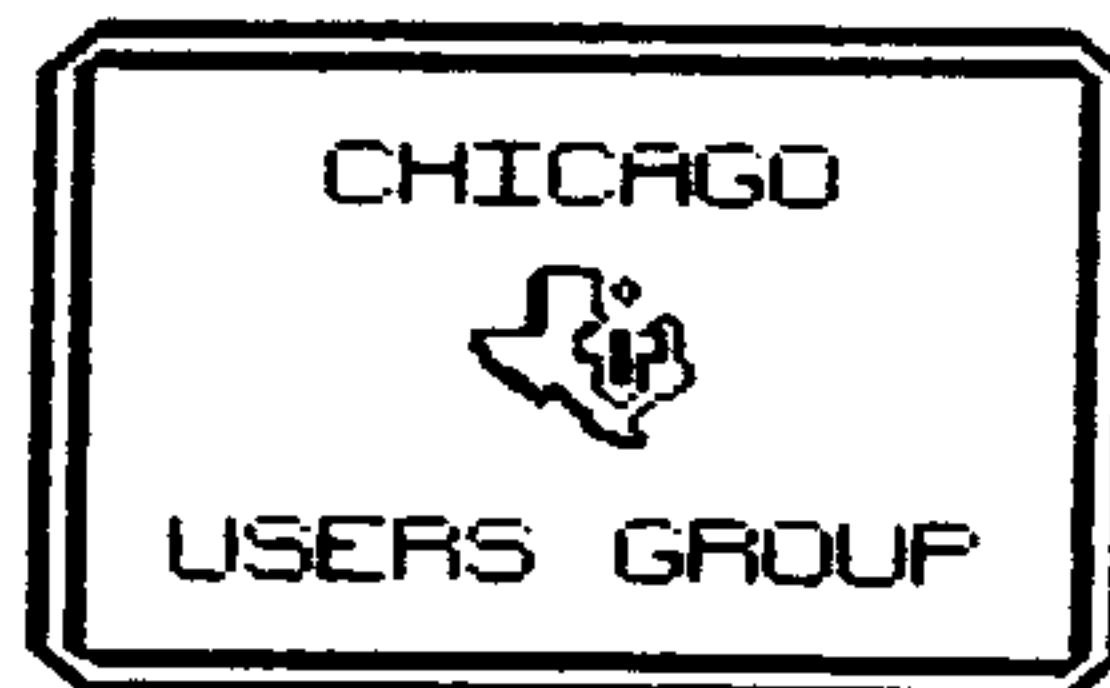




PRESENTS

CHICAGO TIMES

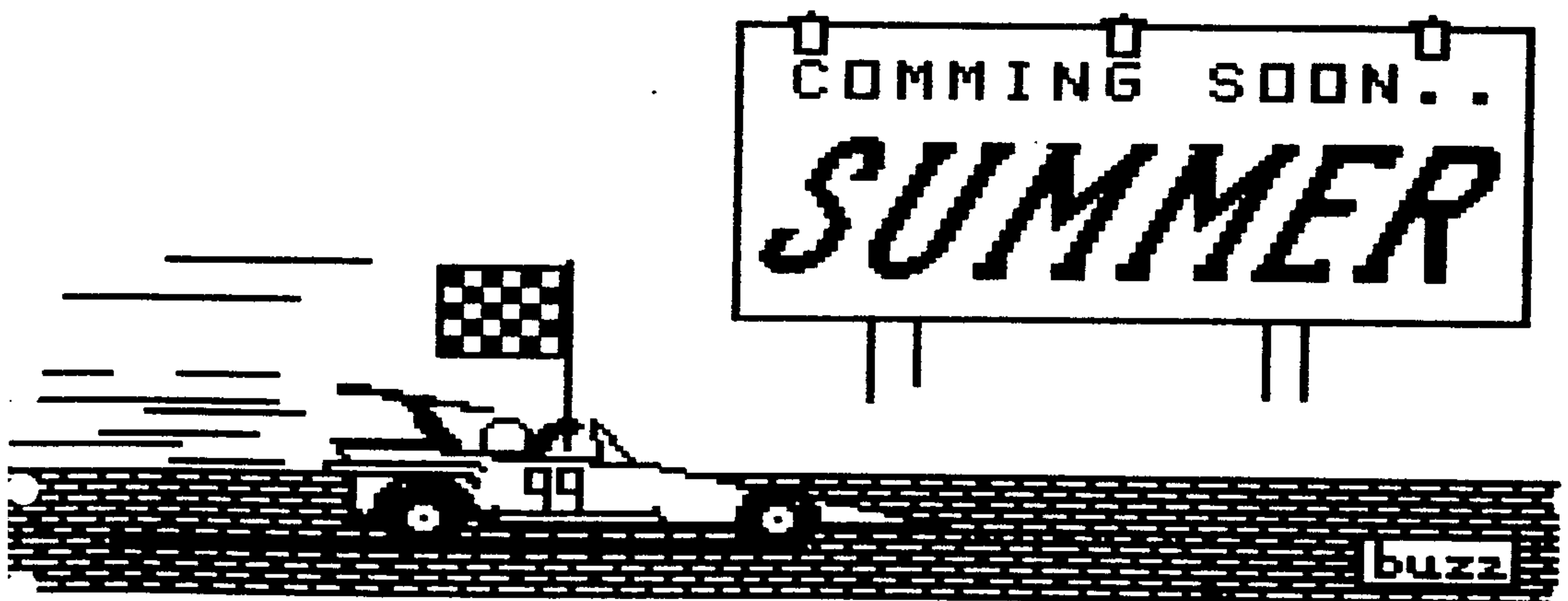
NEWSLETTER OF THE CHICAGO TI-99/4A USERS GROUP

MAY 3RD MEETING PLACE - BRICKYARD MALL
COMMUNITY ROOM

APRIL 30, 1986

EDITOR: Carole Goldstein

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THE MAY MEETING.....

will be held on Saturday May 3, 1986 from 1:00 to 3:00 in the Community Room at the BRICKYARD MALL, Diversey and Naragansette in Chicago. The meeting will feature a continuation of the presentation of Terminal Software and modems, and hopefully the results of the programming contest

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BULLETINS:

NO SIGS WILL MEET THIS MONTH AS WE DO NOT KNOW IF WE WILL HAVE MEETING SPACE AVAILABLE FOR THEM. All regular SIGS will continue next month. See this space for further details in the next newsletter.

MEETING DATES FOR THIS COMING YEAR ARE AS FOLLOWS:

MAY 3 (BRICKYARD MALL)	OCT 4
JUNE 7	NOV 1 (TI FAIRE)
SEPT 6	DEC 6

THE DISASSEMBLY: Dave Wakely

New members, the contest, programmers, magazines, etc: A welcome and hello to our new members out there who have joined us via our ads in Computer Shopper and MICROpendium. Thank you for your trust in us. What you will get for your \$18 (first year dues) is the services of one of the first and most innovative of the TI-99/4A User Groups. We do NOT believe in the concept of a "dead computer" (except for the occasional console lock-up), nor do we believe that there is a shrinking 3rd party market (if they don't write what we need, WE write it ourselves!), and we DO believe that the 99/4A is still the best home computer available thanks to the loyalty and dedication of its owners.

In this magazine (it used to be a newsletter, but we outgrew that) you will find a wealth of information and news about the /4A as well as short, useful programs you can type in and run. This particular column rambles from month to month (depending on what kind of month I've had), from addressing TI rumors to commentary, local group news, software/hardware reviews, and with an occasional jab at the overblown, overdone, and overprogrammed in the TI world. Even if you won't be attending our meetings, we will do our best to meet your TI computing needs.

Our activity for this upcoming meeting is our annual (I forget if this is the 3rd or 4th one) Programming Contest, with up to \$300 in prizes given away. A fair number of entries have been received, and the judging will be completed by the time of our May 3rd meeting. After the meeting all programs will go into our growing library where they will be available to you, but please give our hard-working librarians time to get the software into the system. I believe they are still working on the massive number of programs we received from other groups attending our TI Faire last November. The winning programs will also be announced in the next issue of the Chicago Times.

Speaking of programming, I am still occasionally approached during a meeting by someone wanting to know the name of a good Extended BASIC/Assembly/Forth (take your pick) programmer, sometimes with the offer of cash payment per programming hour. What I have usually done is to point out the nearest face whose work I am familiar with, but it occurs to me that this should be systematized in some way. Perhaps what we need is some sort of "Programming Resource List" or "Programmer's List" or "Code Writers of the Purple Sage" list (obviously we are still working on the name). What's wrong with the present system is that it is limited to people I know. Strangely, this has usually turned out to be either long-time TI user Sam Pincus, or Bill Hoffman (who wrote our original bulletin board system download section), or Nick Iacovelli, known to his friends as "The Road Hacker" ("Writing post-Apocalyptic TI Assembly code in the midst of a decaying civilization..."). There are many more excellent programmers in the group, and we ought to find a way to make them known to you.

There is currently a lot going on in the 99/4A magazine world. My rumor of last month has apparently been confirmed. Some of you have received cards from Home Computer Magazine informing you that it has been sold to a group which apparently intends to turn it at least partially into a software service. As reported here last month, subscribers are being asked to indicate which system they own among those HCM covered so that an appropriate disk can be sent to fulfill the remainder of your subscription. I can't say much more about it since I haven't received my

card yet. Considering my past experience with this outfit, that doesn't surprise me. Also, readers familiar with this column may be surprised at my mention of Home Computer Magazine. At one time, just after Publisher Gary Kaplan sent a rather thinly veiled threat to TI user groups for criticizing his publication, I vowed never to mention it again. Imagine if we all conducted our business this way: ("Dear Colonel Khadafy, I know you have asked us not to criticize you, but I simply must comment on the behavior of some of your emissaries..."). Now that it is under new ownership I will reserve judgement for now, but I will also be closely scrutinizing the quantity and quality of their commitment to the 99/4A.

Also confirmed this month was the rumor that the excellent publication "Super 99 Monthly" will be taking over the unfulfilled subscriptions to "The Smart Programmer", a publication of Miller's Graphics. As in the above paragraph, I am still waiting for official notification, having read this in Miller's latest ad. Although the last issue of "The Smart Programmer" I received was in August, 1985 and was dated August, 1984, Craig Miller has endeared himself to TI owners in other ways, and he has never received the amount of publication delay criticism reserved for HCM. Super 99 Monthly has been around for some time now and is an excellent source of technical detail for the machine and a good choice to replace Miller's publication now that Craig seems to be spending his time making us all happier with new hardware.

If you haven't recently renewed your subscription to MICROpendium you may find that it has lapsed. I was a charter subscriber and the words "LAST ISSUE RENEW NOW" were stamped on the cover of the March issue. This prompted me to act lest I miss any of this excellent "all-TI" magazine. At the last meeting we had a number of copies of MICROpendium available for cover price, and they disappeared in a few minutes. Do yourself a favor, send in your subscription. John Koloen, the editor of MICROpendium, was one of the first to give our annual TI Faire widespread attention, and he personally attended the 1985 Faire.

SUBROUTINES: Don't forget that our group Auction is coming up in June. We need donations of hardware or original package software to auction off. All proceeds go into the group treasury...Rich Klein has taken on a new job for the group. He has been designated to translate Nick I's programs into English - not the Assembly code, the comments! Hey Nick, is that Italian syntax and spelling you've been using, or what?...We hear that the very nice cover art on the ChiTimes is the work of Buzz Krantz...And why is it that this column is beginning to read like the INC. column in the Tribune, hmmm?...

LETTERS TO THE EDITOR

Carole,

I received the Dec '85, Jan '86 and Feb '86 issues of Chicago Times with my new membership. Very informative. Lots of variety.

However: The spelling in some of the articles stinks. I suspect that you receive most of them as files and print them as received. From the white stuff on my letter, you can tell that I am not immune to errors either. Please don't let me make you aggravate your contributors. Without them you wouldn't be able to put out a newsletter with the quality that you now have. All I'm asking, is for you to edit the really bad ones some.

One complaint per issue for three issues doesn't make this a poison-pen letter. I am very impressed with your Chicago Times. I simply see a need for improvement in one area.

Sincerely,

Ollie Hebert
Brewton, Alabama

Ollie:

I appreciate the comment in your letter. Unfortunately I do not have a full staff to help me with the newsletter preparation. I would greatly appreciate it if all contributors would run their articles thru the spell checker or look them over thoroughly before submitting them. But often they do not and due to severe time limitations between receiving submissions and getting them to press, I am often unable to accomplish this step myself. From the sound of your letter, I am sure that if you lived closer, you would volunteer your time to become my proofreader. Until such time, I hope you will continue to enjoy the Chicago Times, flaws and all.

Thanks,
Carole

- - - - -

Ms Goldstein, Editor
Chicago Times

Hello,

For those interested in computers in general, I'd like to suggest a TV program they may not be aware of. "The Computer Chronicles" is broadcast at 6:30 am on Fridays on WTTW - channel 11. This morning's program (April 11th) was on modems and bulletin boards. There was an interesting discussion of programming on the March 28th edition. This is an ongoing newsmagazine, not a multipart series. There have also been a number of self-contained, multipart series on PBS-TV (either channel 11 or channel 20): "Bits Bytes" (Canadian, actually had a TI running), "the Computer Programme" and Making the Most of the Micro" (British), and "The New Literacy" (American). The latter is currently running on channel 20 (Tue & Thu at 1:30 am, Tue & Fri at 8:30 pm, Sat & Sun at 3:30 pm). (Watch TV listings for changes.) So for those wishing to put the TI in context, there have been a number of TV shows about computers to check out.

Sincerely,

John Hedstrom

PS There was a hour-long program on computer graphics ("Computer Imagery") this past Monday night at 8 pm on channel 20. There's an upcoming program on channel 11 called "Hackers" on Monday April 28th at 9:30 pm (repeated on Tuesday April 29th at 2:30 pm). According to the TV listing, "Hackers" is "a look at the pioneers of the computer revolution, including Stephen Wozniak, who built the first Apple computer", not about malicious saboteurs.

Thanks for the great job you're doing on the newsletter.

- - - - -

To The Membership:

Some recent events have made it necessary for the Executive Board to make a statement and request to the general membership:

There has been an increasing number of complaints from various members of the executive board. The complaints concern an increasing number of calls which they are receiving at their homes. Here we should make certain facts clear to the general membership:

Firstly, without exception, all members of the Executive Board are forced to utilize a considerable amount of their time and energies in order to serve the interests of the group and its members. Unfortunately, some members seem to feel that the services which the Executive Board members provide the general membership is something which is owed to them. Nothing could be further from the truth. All members of the Executive Board are volunteers and no one is paid for his/her time or labor. When a members pays membership dues to the group, none of that money pays a salary or gives a financial remuneration of any kind to any member(s) of the Executive Board.

As it was mentioned above, many of the members of the Executive Board have begun to receive calls at home. Most of these calls request services or information or deal with complaints. The members of the Executive Committee find these calls both time consuming and annoying. In the past, many of us have released our numbers to those who have requested them. Now, many of us are finding it necessary to have our numbers changed and kept unlisted. We therefore request that if you were given the phone number of some member of the Executive Board in the past, please don't use it again or pass it out to others without, again, getting permission from the owner of that number to do so. We also request that all questions be held until the meetings or placed in a private or open message on the group bulletin board. As phone modems are now available for as low as \$40.00, new, there is little excuse or reason for a dedicated TI user/owner to not own one. The advantages of having one far outweigh the sacrifice of the cost of owning one.

In closing, we would also like to mention that at the last meeting, a member approached our group librarian because of a disk that she purchased had a program that was not running. Our librarian found that the member who approached him was somewhat rude and demanding. We do agree that a member has the right to receive a functioning program that he/she has paid \$1.00 for. Still we request, that you remember that if something is wrong with a program, it was NOT done intentionally. We also request that you remember that the person that is servicing you is not being paid to do so as we are all volunteers.

Thank you for your future consideration.

Your Executive Board

BASICALLY YOURS: Rich Klein

Did you know that the column you saw in this place last month was actually the column you didn't see the previous month? It proves the old adage which goes:

You snooze, you lose.

I was two days late getting it to the newsletter, and as a result, it wasn't printed until the following month. Oh well, better late than never.

If I may shift the scope of this column for a moment or two, I'd like to mention to those of you who liked the Assembly language routine submitted by me in the last issue, that only minor changes need to be made so it can be used in Extended Basic. First, eliminate the line with the REF statements. The E/B module doesn't support this. Eliminate the DEF statement. Since this routine is invoked in the interrupt service routine, this external entry point is not needed. It was there for test purposes only. Add the following EQUates at the beginning of the source code:

```
VMBW EQU >2024
VMBR EQU >202C
KSCAN EQU >201C
```

These EQUates can be placed with the other EQUates already in the program. These merely replace the REFs which were deleted. Make these changes and assemble the result. The object code produced will run in the Extended Basic environment. The Extended basic version could then be included in an E/B LOAD program so it could be automatically loaded with any utilities you have. The program will be there no matter what you do in E/B as long as you don't leave it. I am going to try to come up with a universal version which will run in either environment (TI Basic or Extended Basic).

Back to Basics. I did receive an inquiry at the April meeting, but I'll need some time to research the answer. This month I'll address the topic of string manipulation. Most of us can program the computer to do math, but I'm not sure that most of us are familiar with all the string commands available in Basic or Extended Basic.

Some of the Basic string commands are:

```
ASC(string expression)
CHR$(numeric expression)
LEN(string expression)
POS(string1,string2,numeric expression)
SEG$(string expression,position,length)
STR$(numeric expression)
VAL(string expression)
```

With these commands (functions, actually), you can manipulate data and produce a desired result. They not only allow you to create text, but also format it neatly.

When manipulating strings, you may use string constants or string variables or both. A string constant is text enclosed in quotes ("ABC"), while a string variable is a letter or group of letters ending with a dollar sign (ABC\$) which refers to a string constant. These are used together to create new and different strings. Before we go much further, let's examine the functions above.

ASC(string expression) is not actually a string function, but I thought I'd include it with the thought that it might be useful for simple string sorts. What it does is return the ASCII code of the first character of a string. The value returned is a numeric

value. If you saw the line:

```
100 A=ASC("HI, THERE")
```

then A would equal 72 since that's the ASCII code for the character "H".

CHR\$(numeric expression) is probably the most used string function in any Basic system. This function is used primarily to display characters not normally accessible from the keyboard. For example:

```
100 PRINT #1:"HI,THERE";CHR$(13)
```

would cause a carriage return to be sent to the device that was opened as file #1. If that file was a printer the printhead would return to the end of the platen. CHR\$() can also be used on the screen to display graphics characters.

LEN(string expression) is also not really a string function because it returns a numeric variable. This function does, however, report the length of a string constant or variable. As you can see, it is extremely useful for keeping track of and controlling certain aspects of strings. If you saw the statement:

```
100 A=LEN("HI, THERE")
```

then A would equal 9, since there are nine characters in that string.

POS(string1,string2,numeric expression) finds little strings inside of big ones and tells you where they are. If you saw the following:

```
100 A=POS("HI, THERE","HI",1)
```

A would equal 1, since "HI" is the first part of the string. If, instead of "HI", the second string was " ", then A would equal 4, since the space character is the fourth character in this string.

SEG\$(string expression,position,length) is the biggie. This is where most of the magic of string manipulation occurs. While the POS() function finds little strings inside of big strings, the SEG\$() function makes little strings out of big ones. You can also use it to make different or larger strings by "stringing" them together. If you saw:

```
100 A$=SEG$("HELLOGOODBYE",6,7)
```

then A\$ would equal the SEGment of "HELLOGOODBYE", starting at position 6, 7 characters in length. This would set A\$ equal to "GOODBYE". Using this function greatly increases the flexibility of the program. This single function replaces the LEFT\$(), MID\$(), and, using the LEN() function, replaces the RIGHT\$() functions found on most other systems. The syntax for MID\$ is the same as SEG\$() and LEFT\$() is similar except that the starting position is assumed and not included. Right\$() is the same except that it starts from the right end and counts left. To do this with the SEG\$() function, we use LEN()-(n-1) to count from the right. For example:

```
100 A$=RIGHT$("HELLOGOODBYE",7)
```

```
100 A=LEN("HELLOGOODBYE")
110 A$=SEG$("HELLOGOODBYE",A-6,7)
```

Both sets of statements would set A\$ equal to "GOODBYE" on their respective systems, although with SEG\$() it is a bit more difficult. MID\$() and SEG\$() have identical formats, and to emulate LEFT\$(), set a SEG\$() with a starting point of 1.

STR\$(numeric expression) converts a numeric expression into a string expression. This is useful when you need to display a numeric value and you don't want the leading and trailing spaces associated with displaying a number. This can also be useful when creating data strings for file storage.

VAL(string expression) is also not actually a string function. It can be useful for extracting numeric data from a data string. It converts a number expressed as a string into an actual numeric value the computer can perform mathematical operations.

How does all this go together? These functions are strung together by use of the ampersand (&). Consider the following routine:

```
100 A$="HELLO"
110 B$="THERE"
120 C$=A$&" "&B$
```

In the above routine, we set A\$ equal to HELLO. We set B\$ equal to THERE. Then in Line 120 we used the ampersand to tie A\$ and B\$ together along with a space character squeezed in between for good measure. If you include the following line:

```
130 PRINT C$
```

and RUN the program, you would see that C\$ is HELLO THERE.

Sometimes when you see a program listing, and it includes a line such as the following:

```
100 PR=CHR$(27)&"B"&CHR$(3)&CHR$(27)&"E"
```

you might wonder what it is or what it means. Well, in this case, if you opened a file to a Gemini printer and sent the above string to it, it would set the printer to print anything that follows in condensed pitch and emphasized print.

What about data strings? Suppose you have a filing (database) program that places each field of a record into one long string. How is the info extracted? Let's see:

```
100 A$="John      Doe      123 Maple St. Anytown Pa.  30001"
110 FNAME$=SEG$(A$,1,10)
120 LNAME$=SEG$(A$,11,10)
130 ADDR$=SEG$(A$,21,15)
140 CITY$=SEG$(A$,36,15)
150 ZIP$=SEG$(A$,51,5)
```

What happened? We used SEG\$() to make little strings from big ones. We took a data string and used the SEG\$() function to extract the individual fields from it and assign them to their proper string variables. Pretty neat, huh!

The ampersand can be used to make a big string from a bunch of little ones. What an ampersand puts together, a SEG\$() can take apart. These two functions are, in effect, opposites of each other. For example:

```
160 A$=FNAME$&LNAME$&ADDR$&CITY$&ZIP$
170 PRINT A$
```

Line 160 recreates the original string in line 100 above. Line 170 prints it for proof. Gee, this isn't so hard!

If we used a few of the other functions, more flexibility would be available and a significant reduction in storage space required for the same info could be realized.

What if we preceded each field in a record string with a number to indicate how long that field is? Then we could use variable size records and the record would not be long if not required. Obviously we would need extra space for the numbers that indicate the length of each field, but if you look at the above string, you can see that a lot more space is wasted with fixed length fields.

We could use the LEN() function to indicate the length of any string after it is INPUTed and then include it with the data entry. When that item is about to be retrieved, that number could be checked first and then the SEG\$() function could be set to that LENGTH and the proper sub-string could then be gotten and used. This all sounds nice, but if we used a number to indicate the length and include it in a string, how is the numeric value generated by the LEN() function placed in this string? The numeric value must be converted to a string itself before it can become part of another string. This can be done by means of the STR\$() function.

This brings up another problem. If the LENGTH of a field is less than ten, then the length of the number to indicate the length of the field would be one. If the field's length was greater than ten, then the length of the number would be greater. How do we determine the length of the number that indicates the length of the field it represents? Simple, we don't. We cheat and use the CHR\$() function and convert the length of the field into an ASCII character. If the length of a field is 24, for example, then we include a CHR\$(24) to indicate its length. This way, we could indicate the length of any string up to 255 characters with just one byte (character). And since the maximum length of a string is limited to 255 bytes, this is entirely adequate for our needs.

Now that we've completed discussion of how we can do all this, let's see what something like this would look like:

```
100 CALL CLEAR
110 A$=""
120 INPUT "LAST NAME? ":LNAM$
130 L1$=CHR$(LEN(LNAM$))
140 INPUT "FIRST NAME? ":FNAM$
150 L2$=CHR$(LEN(FNAM$))
160 INPUT "TELEPHONE? ":PHONE$
170 L3$=CHR$(LEN(PHONE$))
180 A$=L1$&LNAM$&L2$&FNAM$&L3$&PHONE$
190 PRINT A$
```

If LNAM\$ equalled "JONES" then L1\$ would be CHR\$(5). When the string is printed in Line 190, this character won't be visible because it hasn't got a character definition. But it's ASCII value can be and is used to indicate the records length. To weed this value out of the data string, we simply use the inverse function of CHR\$() ; the ASC() function. This function reports the value of the first character of a character string. If we specify a one character string, the length character, then the ASC() function will convert the ASCII value of that character into a numeric value upon which math can be performed. Let's break the string into its original components:

```
200 Y=1
210 X=ASC(SEG$(A$,Y,1))
220 Y=Y+1
230 LNAM1$=SEG$(A$,Y,X)
240 Y=Y+X
250 X=ASC(SEG$(A$,Y,1))
260 Y=Y+1
270 FNAM1$=SEG$(A$,Y,X)
280 Y=Y+X
290 X=ASC(SEG$(A$,Y,1))
```

```
300 Y=Y+1
310 PHONE1$=SEG$(A$,Y,X)
320 PRINT LNAM1$;FNAM1$;PHONE1$
```

I changed the names of the variables used to store each field of the data string in order to show that we actually did dissect the string and display its original components. There are such more sophisticated ways to accomplish the same task with far fewer lines of code, but they could not be as clearly illustrated. Loops and prompt lists are great ways to amass great quantities of information using the same lines of code. Also, if you place a specific character at the end of each field and then use the POS() function to extract the POSition of that special character, you can use a SEG\$() to retrieve the field up to that POSition.

If you noticed in the listing above, I used the variable Y to keep track of where I was any given moment in the string, and in any application such as this, you must always know where you're at or else chaos will reign.

This is all I have room for this time. When Carole sees how long this is, I'm sure she'll shoot me or something equally drastic. Perhaps she'll have me translate something into REAL English for the newsletter. Bye till next time.

MEMBERSHIP CHAIRMAN SPEAKS: Don Jones

Well, Sports Fans, here I am again.

I want to start this article out by thanking my son, Mr. Aleksandr D. Jones, for the aid which he rendered to me just before the last meeting. It was he who stapled the beautiful seven page information document that was written by one of our members, Sheila Baumann. If my son hadn't come to my aid, last meeting day, I would never have been able to have the document copies ready to hand out. Once again, Al: thanks. Now, if I could only get him to take care of the garbage with the same alacrity.

Relative to Mrs. Baumann's board information document: This document is a must for all new members, who intend to interface with our B.B.S. It was very well done and it is very informative. If you did not get a copy, please let me know and we will have more copies made and gotten to you.

Again, I felt that the meeting of our "... and what do I do next?" S.I.G. was a complete success. I feel that we are helping our members. Still, I was a little disturbed to hear that there was a lady, who attended the meeting of our S.I.G., who has a complete system, but she is unable to hook it up. I am disturbed because, I want for all members who, come to our S.I.G. meetings, to feel comfortable to ask any and all questions. No sincere question is too simple or rudimentary for our consideration. But please remember: if you don't ask your question, it will not be answered. On this, I will give you a money back guarantee. My special thanks goes to Carole Goldstein and Rich Klein for being present and helping me to field some of the questions. I also wish to extend my special thanks to Nate Johnson for not punching me out when I "borrowed" his power strip and then kept it longer than I originally said. Thanks, Nate, for not reprogramming my face!

For all new members: There is a set of BASIC tutorial lessons in our library. If you are interested in them, see John Bahnke.

I, like most of the other members of the executive board, have found my responsibilities becoming somewhat overwhelming. I have therefore requested that Al Stump, our technical editor, take over the full responsibility of taking care of the back issues of our newsletter. He now has all of the back issues of our newsletter in his possession. If you wish to purchase any of them, please send your orders in to our post office box number in care of his name. Your orders will be sent out by mail. Those of you who can attend our meetings may see him at the table by the door, when you enter.

Earlier, today, I spoke to Al and asked him what we still have for sale. Here is what is now available:

10/31/84-121 (Freebie with any purchase)

02/28/85-8

03/30/85-04/04/85-46

04/30/85-1

08/30/85-69

10/31/85-23 (Freebie with any purchase)

11/30/85-31

We also have two older issues that are rather small in size. They will be sold for 25c apiece. Just ask for the two "shrimpies."

It was really good to see those issues of Micropendium disappear so quickly. I hope that you enjoyed the magazine. We will have more at the next meeting. Just remember, you can have it sent to your home by subscribing. It is a truly good investment. It will help to make your TI machine a more useful tool. What I would now like to see is someone get some issues of Miller's Graphics for all of the programming geniuses that we have floating around!

To all new members: Please read carefully the last page of our Membership Information Guide and pay particular attention to the last paragraph. I want for all new members to understand the length of the term of membership in the group. Our Membership Information Guide pretty well spells this out. If you no longer have this page, please request it at the meeting or feel free to write for one.

Our group is now trying to obtain more new members. Any present members who bring in a new member will receive the program disk, of their choice, from our library. Those members who volunteered to put out letters to TI owners, in their own zip code areas, will be getting their material by mail, if they haven't already received them. It still isn't too late to volunteer.

Well, Sports Fans, I guess that that's about it for this issue. I may not be at the next meeting. For this, and other reasons, there will not be a meeting of our beginning S.I.G. I do expect to be at the June meeting. Until then, keep your programs "running."

FULL DUPLEX: Irwin Goldstein

Again it is time for another update on the Users Group BBS. The board has been very busy this past month. This is due to the use of the board by new members, 40 new members, in fact; all within two weeks thanks to our active membership drive.

New members to the system introduce new download programs which cause all members to do more downloading which in turn causes increased time usage. Don't be surprised if you get a busy signal when you call. Keep trying. You will get through eventually.

I want to thank those people who are uploading all the super programs which are currently up. We support approximately 45 programs divided into five distinct sections. I also wish to thank Sheila Baumann for her efforts in putting together a users manual for our Bulletin Board System. This manual was distributed at our April meeting. More copies will be handed out per request.

If at this time you are not yet a member of our Bulletin Board, give it a try and see what you're missing. The benefits of membership far outweigh the cost of joining (One dollar). The number to call is: (312) 966-2342. We operate 24 hours everyday.

SOFTWARE REVIEWS: Jack Topham

From ASGARD SOFTWARE comes two programs this month. The first is the product of our John Behnke: "T.O.D. EDITOR" which is a editor that allows you to make your own QUESTS for the TI TUNNELS OF DOOM game module. John has written a very sophisticated program that provides the necessary tools to create a new game or edit an existing one.

Every feature of the cartridge is at your disposal. TITLE, Introductory game description, and of course up to 51 monsters with all the options. The creation of monster shapes is a snap with TOD EDITOR. Quest items, Character types and graphics, weapons, and many standard items are user specified. The really advanced game designer can use program "B" to change Dungeon names, weapon graphics, directions, Magic items and other miscellaneous items.

The manual is adequate but could use more examples. Not being a big TOD fan I expected this review to be difficult. There is a sample game included so you have something to play with as you get started. We have a real genius in John Behnke. Librarian and Author first class! Get TOD EDITOR and support our own.

Next from ASGARD is SCHEDULE MANAGER which creates a four month calender, appointment book, and notebook. Fully menu driven and very well done, SM uses two disks, one for DATA and one for the Program Files. The program auto loads in XBasic and can be configured for one or two drives. Data is entered by date and any day may be flagged as "special". Once data is entered, it can be searched by date or for the next "special" day. Data

can be easily added or changed as appointments change.

The program will print a hard copy calender for any one of the four current months or the screen of any day. A 25 page (screens) NOTEBOOK is provided so you can easily save all kinds of note, thots, etc for later recall.

A nice feature is built in HELP. 32 keywords will get you on-screen help should you need it (and who doesnt?). A fun program that may be just what you are looking for. About \$20. If a next version comes along I hope it would allow sequential search of Special days and not just the next one. The 4 month limit on data is due to disk space. A DS/DD data disk could hold a whole year. The year could be 4 quarters which would speed up searching. Just my druthers and not every one will agree.

I received this month the new MYARK XBASICII I ordered last AUGUST! For \$75 you recieve a new 2.0 EPROM for the RAM DISK, a DISK of files, a MANUAL that has the center hole mispunched, and a CARTRIDGE. A minimum of 128K RAM memory is required and the Main menu comes up "128K OPERATING SYSTEM". My 512K MYARK card leaves me 384K to use as print spooler or RAMDISK.

The CART is 8K of RAM that is loaded on power up from the 2.0 EPROM. The files are autoloaded if in Drive #1. If you copy the files to RAMDISK, MXBII loads in 1 second! Now the good before the bad. MXBII offers three GRAPHICS Modes. The one you have now, 40 COL TEXT, and HI RES GRAPHICS. CALL MARGINS allows windowing. Lots of Graphic statements and they work.

MXBII defaults OLD, SAVE, and RUN to Drive #1 so you do not need to type DSK1.. RUN FILENAME is all that is required. No " " either. Program LIST is lightening fast. MXBII uses 24K for program, 24K for variables and data, and 24K for strings. GREAT? read on....

MXBII is not finished. Only 10% of my programs work since MXBII does not support user SUB or DEF. SPEECH is not yet supported. Many other items are not as they should be. 2.1 is promised for 1 April but we all know what that day is so I am not going to hold my breath another 6 months.

If 2.1 fixes the bugs and adds the promised features(they are in the manual) MXBII will then be somewhere between sliced bread and night baseball and a dream come true. MXBII is the BASIC MYARK plans for the new computer.

TRADING Times:

Ollie Hebert is in the market for a PE Box. He will consider a box with a TI RS232card and/or a CorComp Disk Controller card. He will reimburse postage expense for those who write giving data such as aname, ph/address of person to contact as well as the asking price. Write to him at Rt. 4, Box 23, Brawton, Al 36426.

Hank Ellerman has two 1200 baud modems for sale. They are new in the box with all the documentation and free on line time for CompuServe. They are full Bell 212A compatible, auto answer/dial, automatic adjusting to incoming speeds-110,300,1200 baud, 8 LED displays for easy operation. They come with a one year warranty. Interface cable NOT included and use Hayes commands. Call Hank at 453-7831 or see him at the meeting. Selling for \$120.

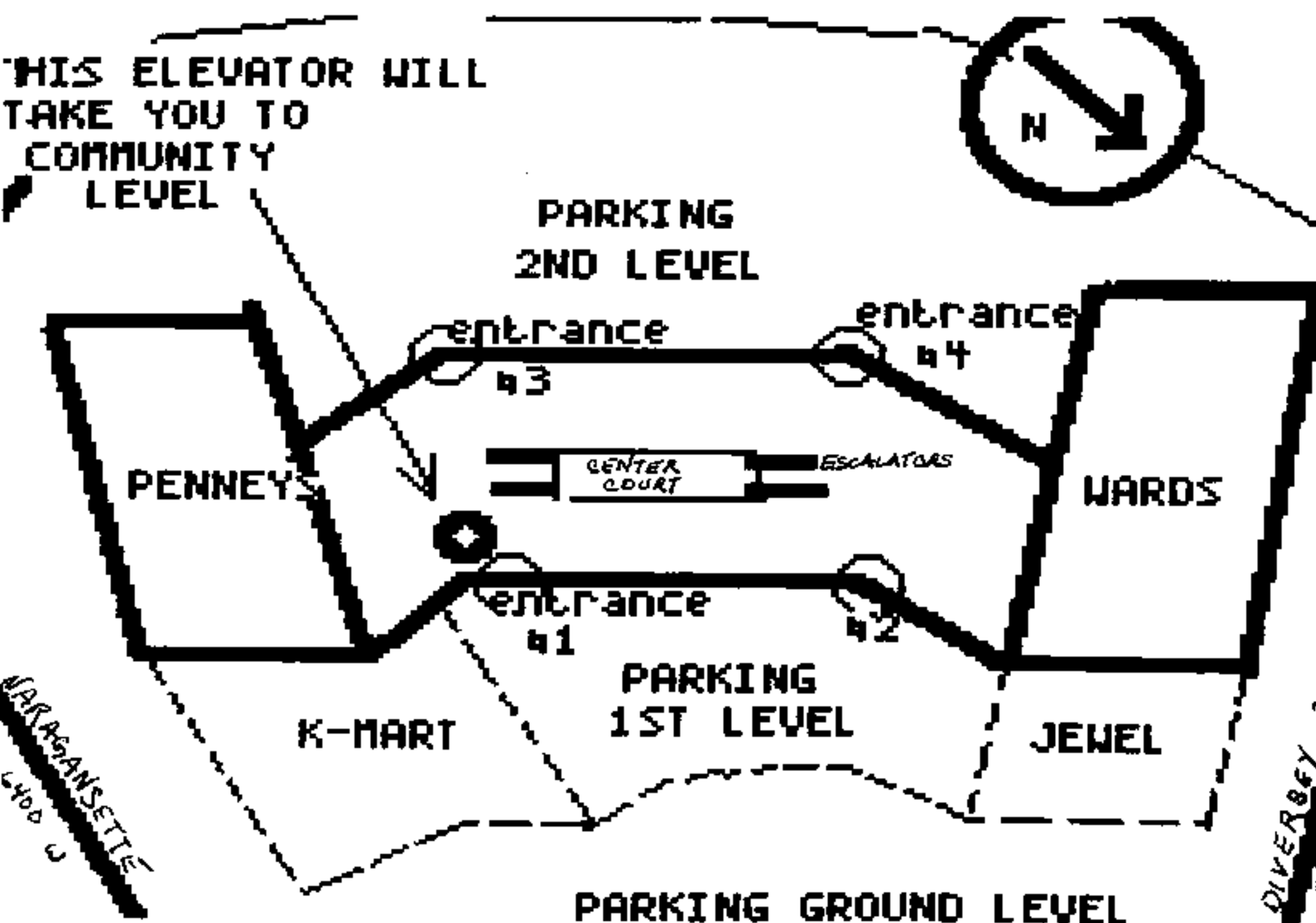
PRACTICAL PROGRAMMING PRACTICES
LABEL SIZE DISK CATALOG

```
100 !+++++++!
110 ! "Label Maker" !
120 ! By John Behnke !
130 ! Chicago Times !
140 ! Requires XB and !
150 ! Printer !
160 !+++++++!
170 CALL CLEAR
180 TYPE$(1)="DIS/FIX"
190 TYPE$(2)="DIS/VAR"
200 TYPE$(3)="INT/FIX"
210 TYPE$(4)="INT/VAR"
220 TYPE$(5)="PROGRAM"
230 OPEN #2:"PI0"
240 PRINT #2:CHR$(27);"S";CHR$(0)
250 PRINT #2:CHR$(27);CHR$(15)
260 PRINT #2:CHR$(27);"3";CHR$(9)
270 PRINT "PLACE DISKETTE IN DRIVE:" AND HIT <ENTER>"
280 CALL KEY(0,K,S):: IF S=0 THEN 280
290 W=0
300 OPEN #1:"DSK1.",INPUT,RELATIVE,INTERNAL
310 INPUT #1:A$,J,K
320 PRINT #2:" Diskette: ";A$;" Available=";K;" Used=";J-K
330 PRINT "Diskette: ";A$;" Available=";K;" Used=";J-K
340 PRINT #2
350 PRINT #2:" Name Size Type P Name Size Type P"
360 PRINT #2:"-----"
370 PRINT "-----"
380 FOR I=1 TO 127
390 IF 1/2=INT(1/2) THEN Q=31 ELSE Q=1 :: W=W+1
400 INPUT #1:A$,A,J,K
410 IF LEN(A$)=0 THEN 530
420 PRINT #2:TAB(Q);A$;TAB(11+Q);J;TAB(16+Q);TYPE$(ABS(A));
430 PRINT A$;TAB(12);J;TAB(17);TYPE$(ABS(A));
440 IF ABS(A)=5 THEN 480
450 B$=" "&STR$(K)
460 PRINT #2:SEG$(B$,LEN(B$)-2,3);
470 PRINT SEG$(B$,LEN(B$)-2,3);
480 IF A>0 THEN 510
490 PRINT #2:TAB(27+Q);"Y";
500 PRINT TAB(28);"Y";
510 IF Q=31 THEN PRINT #2:"" :: PRINT
520 NEXT I
530 FOR I=1 TO 13-W
540 PRINT #2
550 NEXT I
560 CLOSE #1 :: GOTO 270
570 END
```

THE NEXT MEETING
OF THE
CHICAGO AREA TI 99/4A USERS GROUP
WILL BE AT
THE BRICKYARD MALL -- COMMUNITY ROOM

THE FOLLOWING MAP WILL SHOW YOU HOW TO GET THERE ONCE YOU HAVE FOUND THE MALL. TAKE THE ELEVATOR DOWN TO THE COMMUNITY LEVEL.

We will need people there at 10:45 am to help set up the room and we will also need people to help clean up and put things back after the meeting.



FROM THE OTHER ORPHANAGES

From the UPPER PINELLAS 99'er GROUP comes a MULTIPLAN TIP: Once you start scrolling you can release the FCTN or CTRL key and just keep the ARROW key depressed. try it!

The OTTAWA UG advises that a super WIDGET that uses the TI rom handle provided by the engineers way back when will allow "REVIEW MODULE LIBRARY" at last. The VICTORIA Co. (OSRAM IND.) will be selling a 16 cartridge super expander. Apparently GPL will allow one module to call another as well. Basic and XBasic can access TE2 speech if cartridge is plugged in for example. More info to follow.

From NEWPORT NEWS UG comes information on replacing the MINIMEM Battery. Seems DIG-KEY in Thief River Falls, Minn. can supply a part #P142 for \$2.47 with solder tabs. Or a battery holder #BH906-ND \$1.25 and a reg battery #P135 at \$1.73.

On 15 March the Texas Instruments Computer Owners Fun Festival was held in New Jersey. Vendors, classes, lectures, flea market, freeware, demos, etc, etc. Sure sounds like the FAIRE idea has caught on. 99/4A dead? hardly!

The JOHNSON SPACE CENTER UG carried a nice Preview of our Todd Kaplan's DISK MASTER. I am pleased to report that they shared my enthusiasm over this neat program. Have you got your yet? Why not?

The SAN FERNANDO VALLEY UG reminded me that I did not mention a quirk in the CORCOMP TRIPLE TECH card. One version of the card will shut down if you try to use the computer for anything else while the printer is printing out the buffer. GAD! Why else would you want a print buffer. Seems the engineers did us a favor and added an extra circuit to keep the printer from running away at system power up. A small diode CR5 should have one end lifted (disconnected.). Now you can do anything but shut off the console and in over six months I have never had a turn on runaway. Sorry about forgetting.

THE NE IOWA UG reported on using "PRINT USING" with the printer. An undocumented feature of the 99-4A. Brush up on PRINT USING and IMAGE in the XBasic manual and go for it in printing to the printer. Just OPEN # and PRINT # and the rest is the same.

The VANCOVER UG reports on a new product. A set of reference strips that are spiral bound. 15 in all! DM1000, E/A, FAST TERM, DISCO, TIW, TE2, FORTH, MULTIPLAN, etc and four blank for your choice. \$3.50 from TOM RHODES at 320 Tiverton Way, Lexington, KY 40503.

Our UG receives some 30-40 Newsletters each month (and sends out many more). These are bound up each year by Grant for posterity. If you leave him on of your children or a like guarantee, he just might let you borrow them. We do not want them lost, strayed, or stolen.

TECH CORNER

Hard Times #2: A1 Stump

This month's discussion will be on trouble shooting . This is particularly important since there are numerous sources of surplus parts for some of the TI99/4A components. If you haven't picked up any spare keyboards , modulators or other spare parts , it is a step you might consider, especially after reading this column.

Troubleshooting is a technique that comes into play when there is a malfunction in a process , organization or system. We are only concerned in its application to a malfunctioning system. I'm sure that most of you heard the comments a couple of meetings ago in regards to the cleaning of the lower connection on the cartridge connector. Isolating that area as a source of the strange garbled screens or other wierd occurances was an application of troubleshooting technique, but what about other problems? What approach would you take for a system that wouldn't load from disk for example? What good equipment was mentioned in the last issue so ambiguously?

Let's answer these questions one at a time. First the good test equipment I mentioned.(I believe I used the term 'best'.) Actually we were each born with this test equipment.It is normally kept between our ears. O.K. now that I have established that our brains can be considered test equipment , at least in the respect that it is very useful in diagnosing problems. How would we apply it in an actual case?

- 1.Make up a system configuration.
(a block diagram of the system, as it is connected to the console.)
- 2.Document the problem sysptoms .
(I.E. won't load from disk1 , won't print to the printer, etc.)
also note if the problem is constant or intermittent)
- 3.Look for a common path if there are multiple malfunctions.
(I.E. everything on the expansion box side of the speech synthesizer is in active or can't be seen by the system)
- 4.Look for alternate paths if we have a single malfunction.
(I.E. is there another device which will perform the same function)
(if a tape program will load and run ,but not a disk program then we at least have eliminated the console as a source of the problem , but remember there is still the connector that the P.E.B. plugs into.)

Now that we have done our preparation we can begin to troubleshoot. The next step is to check visually our data path. We are looking for loose connections ,frayed cables , cables that are cut through the insulation, etc.If we find any of the above , take appropriate action according to your skill level. I wouldn't recommend that you try to repair some of these cables unless you have some electronic experience. This is a good place to use a spare part , if you cannot find one come to the User Group meeting you can probably find one there. Now if our visual check turned up nothing then we must dig deeper. Here's where our super fantastic diagnostic tool (brain) comes in . The next step is to analyze our resources , if we have a speech synthesizer we can connect it to the side port of the console to insure that signals are O.K.at that point. If

everything is fine out to the P.E.B. then it's contents become suspect, by the way since I didn't mention it earlier , if the console and everything seems dead with the P.E.B. connected , disconnect the box and try to just enter a short program to see if it works without the P.E.B.(In the computer repair business it's called breaking down the buss) If the console works with out the P.E.B. That is the culprit. Either way we are now at the P.E.B.

Let's find out what's going on in that magic box. If the console works when the P.E.B. is disconnected then the box is hanging the buss, if there is only one or two malfunctioning operations, then some card is not recognizing one or more signals. We'll assume for a few minutes that the console works fine without the expansion box. Hook the box back up to the console and in an orderly sequence remove the boards in the box one by one (WITH THE POWER OFF PLEASE) and try the console ,sooner or later you should find that one board being out of the box will allow the console to become operative again .If you should notice any boards where the front light stays on constantly try removing that one first.(with the exception of the console interface board, the cable comes from this board to the console). Once we have determined which board is hanging the buss , we want to confirm that it is defective , so let's try it in another slot in the box , if it still fails in the new slot then we can safely assume that the board is the source of the problem ,send it in for repair . If you have access to another box you may want to triple check it in the other box.

We can now explore the other set of conditions , with one or two malfunctioning operations. There are only a couple of things we can try here, such as try another function on the same board (RS-232/PIO) or (DSK2/DSK1), the next option is to replace the board with another board ,any board to check that the slot is O.K. once we have determined the slot is fine then we have only the board left and we should get it repaired.

This was approached as an exercise in theory , substitute the devices you are having trouble with for the examples used here. If your monitor was suspect try the modulator and a T.V. as an example . If you are having problems feel free to contact me through the C.U.G.BBS , I'M #330.

NOTE!!!!....DO NOT PUT YOUR HANDS IN THE EQUIPMENT WITH POWER ON ,WE COULD LOSE A MEMBER , ALSO WHEN YOU ARE GOING TO REMOVE A BOARD WAIT 2-3 MINUTES BEFORE PULLING THE BOARD OUT SO THE CAPACITORS IN THE POWER SUPPLY CAN BLEED DOWN...OTHERWISE YOU MAY RUIN A GOOD BOARD. THIS WAS WRITTEN TO ASSIST OTHER TI OWNERS WHO MAY RUN INTO PROBLEMS, BUT I AM IN NO WAY SUGGESTING THAT YOU TRY THESE TECHNIQUES YOU DO SO OF YOUR OWN VOLITION. I AM IN NO WAY ACCEPTING THE RESPONSIBILITY FOR ANYONES USE OF THESE TECHNIQUES. I MENTION THEM ONLY BECAUSE I HAVE REPAIRED COMPUTERS FROM THE ATLANTIC TO THE PACIFIC WITH GREAT SUCCESS USING THE ABOVE METHODS..... SEE YOU AT THE NEXT MEETING..AL

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SUPERCART-PART 1

ADDING TO YOUR SUPERCART

(Battery Back-up Circuit and A Second RAM Chip Addition)

Jim McCulloch

1 April 1986

As almost any 99'er knows, a Supercart is a solid state command module for the 99/4A which includes an Editor/Assembler GROM chip and a battery backable CMOS static RAM memory chip, the HM6264LP-15 by Hitachi or other makers. With this module, you can have power-up menu access to any Assembly Language program(s) you feel like including, as long as the total size doesn't exceed 8K.

The full instructions for the construction of the battery backed Supercart were described very well in MICROpendium Magazine in the June, July and August 1985 issues by its inventors, John Clulow and Ron Gries of the New Horizons Users Group of Ohio. It has come to my attention, however, that several people have earlier versions of the Supercart without the battery backup circuit (such as described in one of the Rytel Data newsletters). For anyone who doesn't have access to the MICROpendium issues (everybody should; it's a good magazine for us 99'ers in spite of the controversial major advertiser), this article will describe the addition of the battery backup circuit. For those of you who already have this most useful feature, read the next sentence. Thanks to Mark Lopez who told me how he did it, this article also describes the construction of a manually bank switchable module with TWO HM6264LP-15 chips installed for a total of 16K user addressable memory (albeit 8K at any one time). Although much of the following may be "old hat" to many of you, it includes some information I haven't seen distributed widely and so I naively include it so that more of us can share any helpful information.

PARTS LIST

PARTS	QTY	SOURCE	PRICE
(For the battery back-up circuitry)			
1N914 Signal Diodes	(2)	Radio Shack 276-1122	\$0.99 for 10
1K Resistor-1/4 Watt	(2)	Radio Shack 271-1321	\$0.39 for 5
2.2 MFD Tantalum Capacitor	(1)	Radio Shack 272-1435A	\$0.59 each
Jumbo Red LEDs	(1)	Radio Shack 276-0141A	\$0.69 for 2
Lithium 3V Energell Battery	(1)	Radio Shack 23-150	\$1.79 each
Coin-Type Lithium Battery Holder	(1)	Digi-Key BH906-NO	\$1.25 each

(For the switchable second RAM chip capability)

HM6264LP-15 CMOS RAM IC	(1)	I.C.Express	\$2.95 each
1K Resistor-1/4 Watt	(1)	Radio Shack 271-1321	\$0.39 for 5
SPDT Miniature Switch (Center Off)	(1)	Radio Shack 275-325	\$2.19 each

(General Purpose)

Module Top 1053555-0107	(1)	T.I.Parts Dept.	\$0.36 each
Module Bottom 1053554-0107	(1)	T.I.Parts Dept.	\$0.30 each
Module Door 1015923-0007	(1)	T.I.Parts Dept.	\$0.06 each
Door Spring 1015928-0001	(1)	T.I.Parts Dept.	\$0.05 each
P.C.Board (2 sides) 1015921-0004	(1)	T.I.Parts Dept.	\$3.60 each
E/A GROM Chip 1015950-1234	(1)	T.I.Parts Dept.	\$3.60 each
(201?) Capacitor .10UF 50V 1501701-0122	(1)	T.I.Parts Dept.	\$0.14 each
Screw 1010685-0034	(1)	T.I.Parts Dept.	\$0.02 each

Radio Shack stores are generally ubiquitous. Digi-Key may be addressed at: P.O. Box 677, Thief River Falls, MN 56701-9988 or at 1-(800)-344-4539. I.C.Express can be addressed at: 15358 Valley Boulevard, City of Industry, CA 91746 or at 1-(800)-892-8889 (\$10 minimum order). T.I. Parts Dept. can be reached at their new (1986) phone number at 1-806-741-3864 (Credit Cards useable and get faster response).

Battery Back-up Circuit

On this page, Figure 1 shows the essential Supercart schematic.

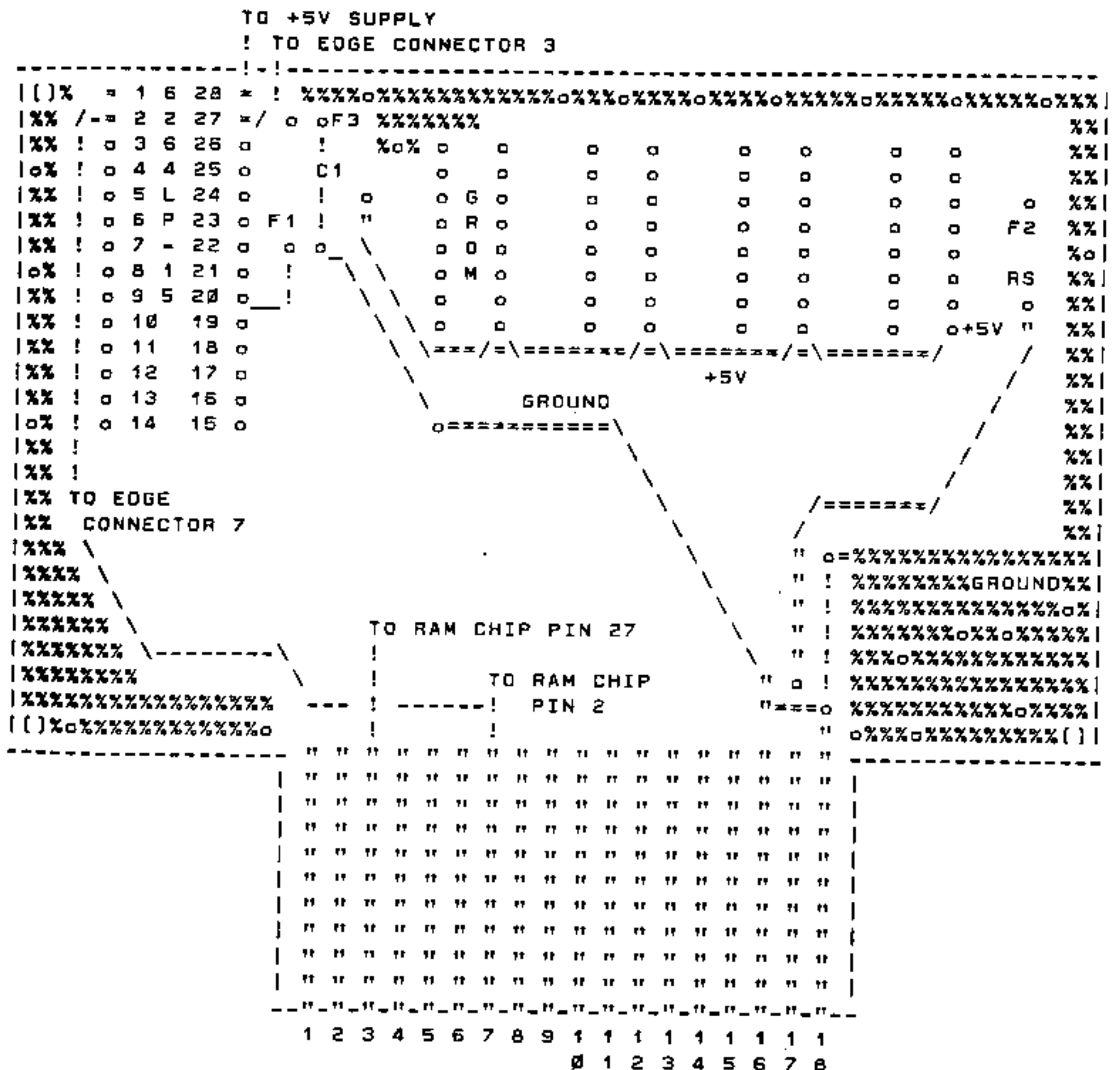


FIGURE 1
(A Supercart Without Battery Back-up)

First of all, to open a module, unscrew the screw on the bottom cover. Then using a flat bladed screwdriver, pry the retaining lugs to be encountered in the bottom slots outwards. If you leave the foil label on the front of the module, it will act as the hinge of the clam shell thus formed, keeping proper alignment. You will probably find that the spring and door assembly are located on the top part of the module case. In some cases it's easier to reassemble the module if the spring and door are on the bottom. If you pinch the spring together (like a hose clamp), it will enlarge enough to fit over the larger post on the bottom module cover and the door fits in as before.

If you have an older style Supercart without the battery back-up circuitry, you may notice that pin 28 of the RAM chip is connected to the right hand side of the foiled hole F3. This is the +5V supply as it is supplied from the console via GROM port extender pin 19 (on the underside of the Printed Circuit Board). In keeping with the MICROpendium instructions, the foiled holes at both F3 and F1 should be electrically separated by scraping away the connecting foil. The C1 capacitor (the one which came installed on the board) should be moved to the right handed holes of F3 (which is +5V from the console) and F1 (which is Ground) if it isn't already there.

There should be a wire connecting RAM hole 28 to the left handed hole of F1 (as well as a connector from RAM pin 28 to RAM pin 22 and a 1K resistor between RAM pin 28 and another part of the board.) The LED has a flattened side; the wire on this side should be connected to the left hand side of F3. This will supply + voltage to keep the CS2 pin of the RAM chip (pin 26) at a high voltage state which is needed for proper operation. To this wire in the left hand side of F3, connect one lead of a 1K resistor (R2 in Figure 2). The other end of R2 connects to any one of the Grounded foiled holes around the periphery of the board. The lead of the LED opposite the flattened side should be connected to any of the +5V holes available on the board; this may include the right hand side of F3 or any of the bottom right GROM holes as shown in Figure 2.

Somewhere on the board, you should make an electrically isolated hole; if you remove the 100 ohm reset resistor between F2 and RS, then the F2 hole is easily available by scraping away its foil connection with the rest of the board. Into this hole, solder a short length of stiff wire; to this terminal you will be soldering four other connections. The first of these four connections is the dark banded end of a diode (D1 in Figure 2); the other end of D1 is connected to a +5V supply hole, such as at the bottom right side of the right-most GROM socket. This will supply the +5V to activate the RAM chip and enable it to be written to. The second connection to F2 is one end of a 1K resistor (R3 in Figure 2). The other end of R3 should be soldered to the dark-banded end of another diode (D2 in Figure 2). The other end of D2 should be connected to the positive lead of the Lithium battery holder. (Soldering these types of batteries EXPLODING when subjected to heat or changing currents. The diodes in this circuit are apparently used to prevent such currents.) The third connection to F2 is the + lead (it's marked) of the Tantalum capacitor (C2, in Figure 2). The other lead of the Tantalum capacitor should be connected to any of the grounded holes around the periphery of the board. This is to "isolate" the power source. To any of the grounded holes available around the periphery of the board should be connected the negative lead from the Lithium battery holder. The fourth and final connection to F2 is a wire, the other side of which connects to Pin 28 of the RAM chip (disconnect any previous wiring from it to F3). Wrap any exposed wiring with electrical tape to prevent short circuits. I drilled a 1/4" hole in the front label side of the cartridge to let the LED shine through; it's not absolutely needed for correct functioning but it's a nice touch. Voila, this should do it for the battery backed circuit!

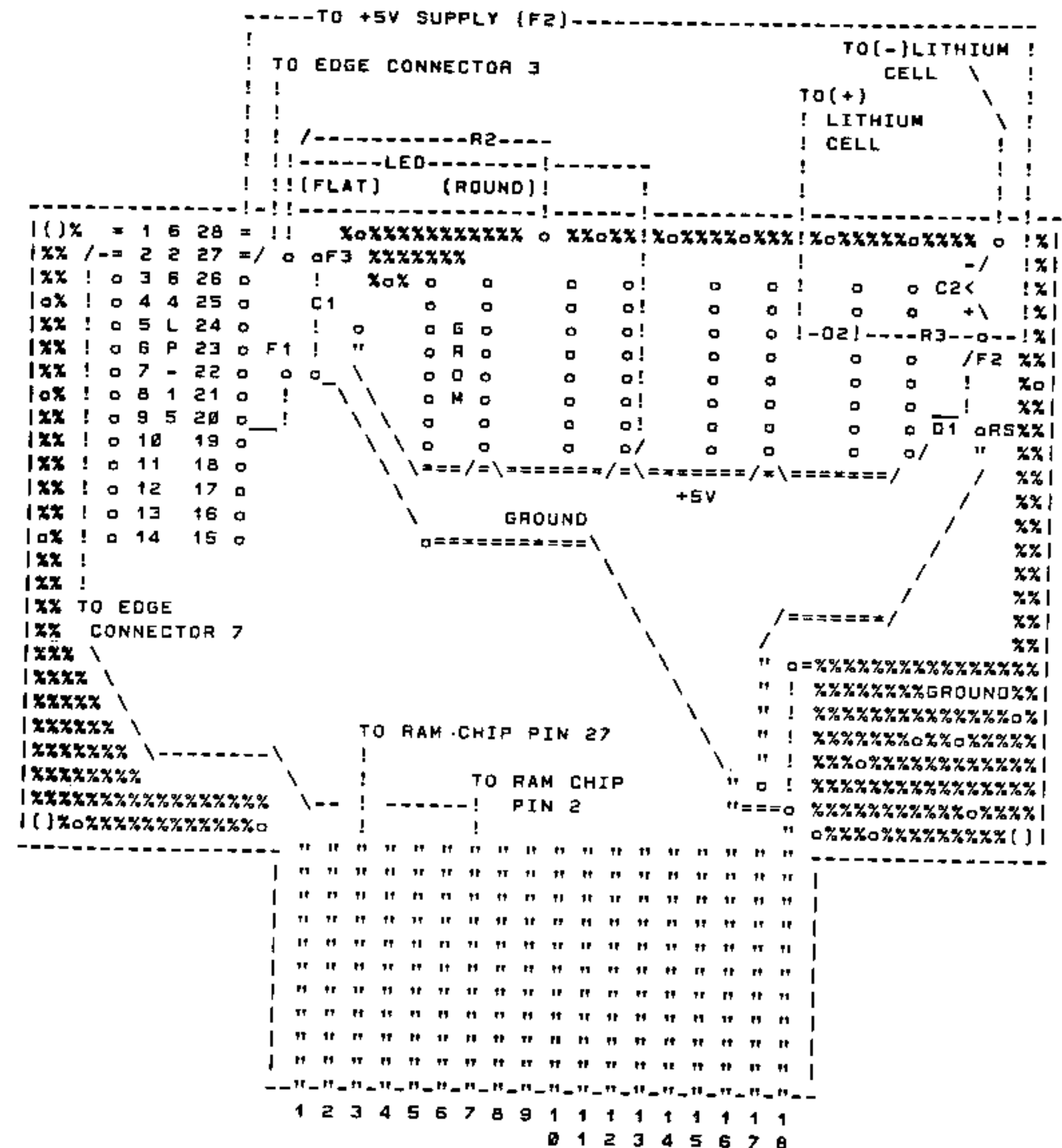


FIGURE 2
(Supercart With Battery Backup Circuit)

Supercart Additions - McCulloch

ASSEMBLY WORKSHOP

LEARNING ASSEMBLY
NICK IACOVELLI JR
PART 5

MEMORY MANIPALATION

I have looked back over the other articles I have written on learning assembly language. I have shown how to put characters on the screen, change character patterns and a small example of how KSCAN works (part 2).

Those examples should be enough to get you started programming in assembly. I started programming in TI ASSEMBLY LANGUAGE by the few examples shown in an article in 99'er translating basic to assembly. This article showed even less than what I have shown you. The following article will show different ways of moving data in memory. But first I need to know what, in assembly, you want to learn next.

CATEGORIES ARE:

1. SPRITES (MOVING GRAPHIC CHARACTERS WAS IN PART 2 KSCAN ROUTINE)
2. FILES
3. SPEECH
- 4 UTILITY LINKS (XMLLNK GPLLNK)

PLEASE TELL ME AT THE NEXT MEETING OR LEAVE ME A EMAIL USER #2 ON MY BBS AT 766-2797.

NO RESPONSE MEANS NO ARTICLES.

TI ASSEMBLY has many different ways of moving data or information. This includes:

MEMORY TO MEMORY
MEMORY TO REGISTER
INDEXING (note the word)
AUTO INCREMENTING

MEMORY TO MEMORY

The most common way to move memory in TI is to move from one memory location to another this is done by the MOVE command. The most common format of this command is MOV @>A000,>B000. This will move what was in location >A000 to location >B000. IF >A000 equals 1 and >B000 equals 0, then after the move instruction >B000 equals 1. The following instructions are also included in this format.

S: subtract	SB: subtract bytes
A: add	AB: add bytes.
C: compare	CB: compare bytes.
SOC: Set ones corresponding	SOCB: set ones corresponding byte
SZC: Set zeros corresponding	SZCB: set zeros corresponding byte

WORK SPACE REGISTER ADDRESSING

The most simple command moves the contents of one register to another (registers are where most calculations take place, but are usually not necessary unless using TI routines like VMBW, VSBW, VMBR, etc...).

EX. MOV R1,R2

This is the same as the move instruction for memory. If R1 equals 1 and R2 equals 0, then after the move, R2 equals 1.

WORKSPACE REGISTER INDIRECT ADDRESSING

Follow this closely. This is tricky. INDIRECT ADDRESSING is usually followed by a '@'.

EX. MOV @R1,R2

If the '@' symbol is there, it takes what is in R1 and works it like it a memory symbol. If R1=>A000 it would move what is in memory location >A000 to R2.

AUTO INCREMENTING MEMORY

In the previous example, if the instruction was 'MOV @R1+,R2', R1 would equal >A002 and R2 would equal what was in memory location >A000. The '+' symbol mean to add 2 on word commands and add one on byte commands. MOV @R1+,R2 would make R1=>A001 and the word of R2 equal to what was in memory location >A000 in the high byte (left side) and what ever was in R2 in the low byte (Remember, TI workspace registers are 16 bit, or two byte registers).

SYMBOLIC MEMORY ADDRESS

Example:
MOV @LABEL,R1
MOV R1,@LABEL

Symbolic addressing is used to move memory with (or to) symbols or labels. When working in assembly, we don't know exactly where most storage information is located, so we assign it a label and use a DATA statement command.

Example:
LABEL DATA 10

This sets aside a memory location whose content is the value 10 at the address the label refers to. I could move it around (MOV @LABEL,R1), add to it (A R1,@LABEL). If R1 equals 1, then LABEL is now equal to 11. Or I could subtract: S R1,@LABEL. If R1 equals 1 and LABEL equals 10, now LABEL equals 9.

THIS STUFF ABOUT MEMORY IS NEVER EASY TO EXPLAIN. IF YOU NEED MORE UNDERSTANDING, COMPARE THIS ARTICLE TO WHAT TI HAS IN ITS ASSEMBLER BOOK AND MY LAST ARTICLE. IF RICK BERNSEE UNDERSTANDS WHAT I AM TALKING ABOUT YOU COULD TOO. HE LEARNED BY READING MY ARTICLE AND ASKING ME A FEW QUESTIONS.

RAM BUGS?: Texincia Lubbock

RED, YELLOW and BLUE T-SHIRTS with the CHICAGO TI USER'S GROUP logo have been reported all over Northern Illinois. Thanks to MIKE CHAPPELL for the fine blow-up job to JOHN BEHNKE'S logo. Why just yesterday, I received a call from the Governor's Office wanting to know what boxes of breakfast cereal he had to eat to get one for himself. I assured Big Jim that it was a legit T-SHIRT and told him the only way he could get one was by joining the CHICAGO TI USER'S GROUP and (attempting to) purchase one at the next meeting. How about some in LAVENDER, MIKE?

I sincerely hope the agenda at the May Meeting is not the DEMOLITION derby that took place when neither TODD KAPLAN, HANK ELLERMAN, TOM KIPKATRICK, not the Dr. GOLDSTEIN could seemingly control what was touted as an explanation of MODEMS, TERMINAL PROGRAMS, and the GROUP BULLETIN BOARD. I really would have liked to have seen more of the other modems demonstrated as well.

My disappointment was soon washed away when STU OLSON (remember his farewell party in last month's column?) demonstrated his MASS TRANSFER program. Guess he decided to show us a more efficient way to utilize his TI/FAR/SOUTHWEST/BBS once he gets it going.

MICROPENDIUM jumped the gun a month and kept MR. GRANT busy for at least five minutes. Hope to see more of this fine publication in May. Now if we could only find more for GRANT to do...

Speaking of RUMORS... What's all this I hear about HOME COMPUTER MAGAZINE? Are they out of business? Were they bought by HOME COMPUTER JOURNAL? Are they being held hostage in GRANT'S basement with all the postcards? Will we receive future copies with a DISKETTE of programs? Will the programs run on the TI or will we be forced to purchase an IBM compatible from one of our advertisers? Tune in next fall for the conclusion of this epic saga or call 503-342-4013 for further information.

NEW COMPUTER DERBY AT SUMMER CES? Sorry, folks, but I for one am getting just a little tired of having the same old carrot yanked from in front of my face every month! My friends are beginning to tell me that I look more and more like a JACKASS (no comments from the TEMPERANCE SIG, please) every time I respond to this rumor! MYARC should either put NOAH out to sail or sink the ship permanently!

DANNY GOLDSTEIN sure looks like he's having a good time while he's working at the LIBRARY TABLE. Between DANNY, BERNIE (don't drop those drives any more) KUCHARSKI, and DAVID BEHNKE, they really got everyone taken care of quickly and efficiently. In case you're not already familiar with the Group's Library, check out all they have to offer in the NEW CATALOG that should be available at the May Meeting.

Wonder if BUZZ KAHNTZ and SHEILA BAUMANN got all their GOTOS and POSUBS worked out after the April Meeting was over?

Don't forget to bring your credit cards to the May Meeting at the SPIEGELMAN MALL. Thanks to the persistence and ingenuity of HANK ELLERMAN, you'll be able to stock up on diskettes and other sale items after the meeting. Until then, see you at the sales!

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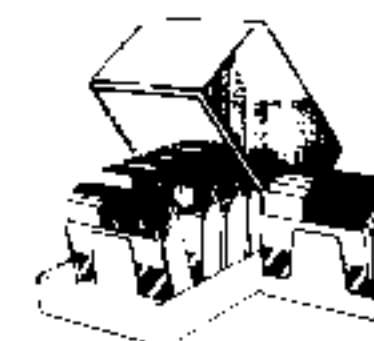
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REMARKS: Carole Goldstein

First off this month I would like to send out a special welcome to all our new members. We have picked up a lot of new members through our ads in Micropendium and Computer Shopper. Hope all of you enjoy the group and if there is anything you are able to contribute, please send it to the above address in care of the CHICAGO Times.

Lots of interesting articles to be found in this issue. Rich Klein has presented an in depth look at string commands. Al Stump continues his Hard Times column with a look at troubleshooting. He also has some interesting things planned for the next and the Super Summer Issues. Also for you Teckies out there Jim McCulloch has presented something for those of you who have been tinkering with a Supercart. Part 2 of his enhancements will appear next month. And as always, our resident gossip columnist Texcincia Lubbock brings us another installment.

Our library list may or may not make it to this next meeting. John and those helping him have been working overtime trying to get this catalog completed but they all have other commitments as well and although they are trying to finish, they may not be able to make the deadling. If it is not ready at this meeting it should be ready for the next.

As you all should know by now, the next meeting will be held in the Community room of the Brickyard Mall. I have included a map in this issue which can be found on page 16. Hope to see you all there.
